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| 10/538,136 | 06/09/2005 | Takeshi Kimura | 05361/GH | 1531 |

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| EXAMINER | |
|---|---|
| SINCLAIR, DAVID M | |

| ART UNIT | PAPER NUMBER |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/538,136 | KIMURA ET AL. | |
| | Examiner | Art Unit | |
| | DAVID M. SINCLAIR | 2831 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *24 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,2 and 4-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *16 July 2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

Applicant is reminded of the requirements of 37 CFR 1.121(c).

(c) *Claims*. Amendments to a claim must be made by rewriting the entire claim with all changes (*e.g.*, additions and deletions) as indicated in this subsection, except when the claim is being canceled. Each amendment document that includes a change to an existing claim, cancellation of an existing claim or addition of a new claim, must include a complete listing of all claims ever presented, including the text of all pending and withdrawn claims, in the application. The claim listing, including the text of the claims, in the amendment document will serve to replace all prior versions of the claims, in the application. In the claim listing, the status of every claim must be indicated after its claim number by using one of the following identifiers in a parenthetical expression: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

(1) *Claim listing.* All of the claims presented in a claim listing shall be presented in ascending numerical order. Consecutive claims having the same status of "canceled" or "not entered" may be aggregated into one statement (*e.g.*, Claims 1–5 (canceled)). The claim listing shall commence on a separate sheet of the amendment document and the sheet(s) that contain the text of any part of the claims shall not contain any other part of the amendment.

(2) *When claim text with markings is required.* All claims being currently amended in an amendment paper shall be presented in the claim listing, indicate a status of "currently amended," and be submitted with markings to indicate the changes that have been made relative to the immediate prior version of the claims. **The text of any added subject matter must be shown by underlining the added text**. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. Only claims having the status of "currently amended," or "withdrawn" if also being amended, shall include markings. If a withdrawn claim is currently amended, its status in the claim listing may be identified as "withdrawn—currently amended."

(3) *When claim text in clean version is required.* The text of all pending claims not being currently amended shall be presented in the claim listing in clean version, *i.e.*, without any markings in the presentation of text. The presentation of a clean version of any claim having the status of "original," "withdrawn" or "previously presented" will constitute an assertion that it has not been changed relative to the immediate prior version, except to omit markings that may have been present in the immediate prior version of the claims of the status of "withdrawn" or "previously

presented." Any claim added by amendment must be indicated with the status of "new" and presented in clean version, *i.e.*, without any underlining.

(4) *When claim text shall not be presented; canceling a claim.*

(i) No claim text shall be presented for any claim in the claim listing with the status of "canceled" or "not entered."

(ii) Cancellation of a claim shall be effected by an instruction to cancel a particular claim number. Identifying the status of a claim in the claim listing as "canceled" will constitute an instruction to cancel the claim.

(5) *Reinstatement of previously canceled claim.* A claim which was previously canceled may be reinstated only by adding the claim as a "new" claim with a new claim number.

The amendment to the claim 5 includes newly added text, the Ni, which was not underlined as required by 37 CFR 1.121(c), however, the examiner will enter the amendment.

## *Response to Arguments*

1. Applicant's arguments with respect to claims 1-2 & 4-6 have been considered but are moot in view of the new ground(s) of rejection.

## *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-2 & 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amaya et al. (5,426,560) in view of Araki et al. (2002/0064638) and Takezawa et al. (6,524,721).

In regards to claim 1,

Amaya '560 discloses a multilayer ceramic electronic comprising internal electrodes formed in a ceramic body wherein external electrodes formed of a thermosetting conductive paste comprising a metal are formed on the ceramic body to contact the internal electrodes (fig. 1; C3:L31-40). Amaya '560 fails to disclose the metal powder having a melting point of 300°C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300°C or less, of from 5% to 17.6% and an internal electrode(s) comprising Ni.

Araki '638 discloses a multilayer ceramic capacitor wherein the internal electrodes are formed of nickel (abstract). Araki '638 fails to disclose the metal

powder having a melting point of 300°C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300°C or less, of from 5% to 17.6%.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the internal electrodes of Amaya '560 using the nickel taught by Araki '638 to obtain a capacitor with improved durability.

Takezawa '652 discloses a thermosetting conductive adhesive ([0021]) useable in electronics, said thermosetting conductive paste comprising conductive particles having a high melting point of 400°C or more ([0026]), metal powder ([0028]) having a melting point of 300 °C or less and a thermosetting resin(s) ([0044]), and wherein the metal powder having a melting point of 300°C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300°C or less, of from 5% to 17.6% ([0027] & [0031]) .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the external electrode layer of Amaya '560 using the conductive adhesive of Takezawa '652 to obtain a multilayer ceramic electronic part wherein the external electrodes have improved corrosion resistance.

In regards to claim 2,

The references as applied above disclose all the limitations of claim 2 except the total content of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less in said thermosetting conductive paste is in the range of 70 to 95% by weight relative to the total weight of said conductive particles having a high melting point, said metal powder having a melting point of 300 °C or less, and said resin.

Takezawa '652 discloses the total content of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less in said thermosetting conductive paste is in the range of 70 to 95% by weight relative to the total weight of said conductive particles having a high melting point, said metal powder having a melting point of 300 °C or less, and said resin ([0045], [0027] & [0031]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the external electrode layer of Amaya '560 using the conductive adhesive of Takezawa '652 to obtain a multilayer ceramic electronic part wherein the external electrodes have improved corrosion resistance.

In regards to claim 4,

Amaya '560 discloses a method of manufacturing a multilayer ceramic electronic part comprising the steps of providing a metal/thermosetting resin mixture, a ceramic composite body which is to be provided with an external electrode(s); printing or applying said metal/thermosetting resin mixture on or to a surface(s) where an internal electrode(s) of said ceramic composite body is led out; and curing said metal/thermosetting resin mixture to form said external electrode(s) (fig. 1; C3:L31-40). Amaya '560 fails to disclose the metal powder having a melting point of 300°C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300°C or less, of from 5% to 17.6%; said conductive paste is cured at a temperature of 80 °C to 400 °C for a period of one to sixty minutes; and an internal electrode(s) comprising Ni.

Araki '638 discloses a multilayer ceramic capacitor wherein the internal electrodes are formed of nickel (abstract). Araki '638 fails to disclose the metal powder having a melting point of 300°C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300°C or less, of from 5% to 17.6%.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the internal electrodes of Amaya '560 using the nickel taught by Araki '638 to obtain a capacitor with improved durability.

Takezawa '652 discloses providing a thermosetting conductive adhesive ([0021]) useable in electronics, said thermosetting conductive paste comprising conductive particles having a high melting point of 400°C or more ([0026]), metal powder ([0028]) having a melting point of 300 °C or less and a thermosetting resin(s) ([0044]), and wherein the metal powder having a melting point of 300°C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300°C or less, of from 5% to 17.6% ([0027] & [0031]); said conductive paste is cured at a temperature of 80 °C to 400 °C for a period of one to sixty minutes ([0060]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the external electrode layer of Amaya '560 using the conductive adhesive of Takezawa '652 to obtain a multilayer ceramic electronic part wherein the external electrodes have improved corrosion resistance.

In regards to claim 5,

The references as applied above disclose all the limitations of claim 5 except the conductive particle in said external electrode makes a diffused junction with the Ni of said internal electrode of said multilayer ceramic composite body. However, the combination of Amaya '560, Araki '638, and Takezawa '652 further discloses the conductive particle in said external electrode makes a diffused junction with the Ni of said internal electrode of said multilayer ceramic composite body (the diffused junction is caused by the method of manufacturing therefore the method taught by the combination of Amaya '560, Araki '638, and Takezawa '652 which disclose the method of claim 4 would inherently create a diffused junction between the internal and external electrodes).

In regards to claim 6,

The references as applied above disclose all the limitations of claim 6 except the multilayer ceramic electronic part is selected from the group consisting of a capacitor, a capacitor array, a thermistor, a varistor, an LC composite part, a CR composite part, an LR composite part, and an LCR composite part. However, Amaya '560 further discloses the multilayer ceramic electronic part is selected from the group consisting of a capacitor, a capacitor array, a thermistor, a varistor, an LC composite part, a CR composite part, an LR composite part, and an LCR composite part (abstract).

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPAT 5,335,139 – Ni internal electrodes less expensive

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID M. SINCLAIR whose telephone number is (571)270-5068. The examiner can normally be reached on Mon - Thurs. 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diego Gutierrez/
Supervisory Patent Examiner, Art Unit 2831

/D. M. S./
Examiner, Art Unit 2831